



Earth Gauge™ Atlanta – The Built Environment

Environmental Information for Broadcast Meteorologists

This fact sheet is part of a series on key weather-environment topics for the Atlanta regional area. The Earth Gauge™ Healthy Communities project is designed to provide basic background information on environmental impacts in major U.S. urban areas, as well as simple messages meteorologists can deliver to their viewers.

Over the ten-year period from 1991 to 2001, Metro Atlanta covered 158 square miles of land in “impervious” surfaces – paved streets, driveways, sidewalks, and roofs. During the same time period, the city lost 307 square miles of tree canopy. As urban landscapes grow, associated environmental impacts in the community are often observed, including changes in air quality, water quality, flooding, and temperature extremes.

What is the Relationship between the Weather and the Built Environment?



Air Quality: Areas where land uses are separated (such as residential and commercial properties sited in different areas) often have a higher number of vehicle miles traveled per person. Cars are a primary source of air pollutants, including key ingredients for ground-level ozone pollution, which is of particular concern in Atlanta during the warm, sunny summer months.



Water Quality: Pavement prevents rainwater and snowmelt from soaking into the ground. Instead, water runs over paved surfaces and into storm drains, picking up any pollutants it encounters along the way. It is generally accepted that when 10 percent of a watershed is paved, aquatic ecosystems begin to show stress; over 30 percent, they are considered impaired.



Flooding: Heavy rain events in urban areas can overload storm drains, gutters, and pipes. As water accumulates, it can overwhelm the capacity of sewer pipes and local rivers and streams, leading to flash flooding. Floodwater can damage property and contaminate drinking water supplies.



Temperature Extremes: Because pavement absorbs and traps heat, cities tend to be warmer than surrounding areas – a phenomenon known as the “urban heat island effect.” The effect can be especially pronounced in areas that have lost significant amounts of tree canopy. Elevated city temperatures result in increased energy demand for air conditioning, increased air pollution, and heat-related illnesses and deaths.

Learn More about Weather and the Built Environment

The Livable Communities Coalition is addressing the way Atlanta grows by looking at the issues of housing, density, parks, transportation, and water resources. www.livablecommunitiescampaign.org

The Atlanta Regional Commission, the regional planning and intergovernmental coordinating agency for the 10-county Metro Atlanta area, has information about what’s being done to protect air quality, water quality, and greenspace. www.atlantaregional.com/environment

EPA Smart Growth Program houses resources on many built environment topics. www.epa.gov/smartgrowth

Flip this page over to find simple messages and tips about weather and the built environment you can use during your on-air weather report.



Earth Gauge

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Making the Connection: What You Can Say On-Air

Here are some simple facts and tips you can provide to your viewers to help make the connection between weather and Atlanta's built environment. Help your viewers understand the environmental impacts of a changing landscape, and how they can reduce their own impact.



Trees – Nature's Air Conditioners

Over the past 20 years, Atlanta has lost up to 60 percent of its trees! The loss of tree cover in the region has resulted in urban heat islands – areas where pavement and other hard surfaces absorb and trap heat, making the city feel three to ten degrees warmer than surrounding natural areas. Heat islands can result in higher energy demand for air conditioning and can contribute to heat-related illnesses and deaths.

Viewer Tip: Get planting! Planting on the east and west sides of your home can help to shade from heat during the mid-afternoon sun – walls that are shaded can be up to 36 degrees cooler than unshaded walls. Consider choosing deciduous trees (trees that lose their leaves in the winter), which will block sun during the summer, but allow warming sunlight through during the winter.

If you are interested in helping plant trees in the community, check out Trees Atlanta's volunteer calendar: www.treesatlanta.org.

Know Your Flood Risk

Flooding can occur at any place and any time throughout Georgia, and is often associated with heavy rainfall. In urban areas, where pavement has replaced forests and fields, there can be two- to six-times as much water runoff than would occur in a natural area, which can overwhelm local streams and rivers.

Viewer Tip: Know your flood risk! Over the course of a 30-year mortgage, a home has a 26 percent chance of being damaged by a flood, compared to only a 9 percent chance of being damaged by a fire. Find out if you live in a flood-prone area, and make sure that you have an evacuation plan in place. You can learn your flood risk by visiting the flood risk tool at www.floodsmart.gov and entering your address.



Heat Alters Weather?

Pavement and buildings in Atlanta absorb and trap heat in the city, and temperatures can be up to 8 degrees warmer than surrounding natural areas. Scientists have found that this extra heat in the city actually results in more rainfall and thunderstorms. As the city gets warmer, the hot air rises and cooler air moves in, building winds. As the warmer air moves up, it forms clouds that rain as they rise.

Viewer Tip: Asphalt, tar, and other dark pavement and roof surfaces absorb and hold heat, even after the sun sets. Thinking about adding or replacing a walkway at your home? Consider using materials that are less likely to absorb heat, such as gravel, grass, or mulch. Not only will these materials stay cool, but they'll also allow rain water to soak into the ground instead of running off into the street.

Transit Trek

One study of Americans using public transportation found that they spend about 19 minutes per day walking to and from transit stations. Not only does using public transportation reduce the number of cars on the road and decrease air pollution, but it may also help Americans fit in the recommended 30 minutes of exercise per day.

Viewer Tip: On nice days, consider walking to the bus stop, transit station, or all the way to your destination. You can learn more about Atlanta's transit system and map out a route by visiting www.itsmarta.com.

